Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

2.2.2 Processing for Reversal Image

This process requires all the procedures described in Section 2.2.1, "Processing for Standard Negative Image" plus several more which follow:

NOTE

Ignore steps a. and b. if image is to be reversed with fogging developer.

a. Set RE-EXPOSURE METER and CONTROL at value required for proper light level in flasher assembly.
b. Turn ON switch labeled LAMP to light flasher assembly lamps and to start blower motor.
c. In addition to flow meters checked during negative process, check those for BLEACH, CLEAR, and DEV.-2 to verify proper replenishment rates.
d. Check all flow meters for WASH except WASH TANK-1 and -13 to verify proper water recirculation.

2.2.3 Processing Sheet Film

NOTE

The operator should feed several 11- by 14-inch sheets of test film each day when the processor is first turned ON. This action will help clean off foreign matter which may have accumulated on the rollers during shutdown.

Declass Review by NGA.

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

CAUTION

Sheet films thinner than five mils should have a leader tab attached to their leading edge with Mylar waterproof pressure-sensitive tape. This tab should be trimmed to film width.

a. Check to see that all electrical controls are ON.
b. Set SPEED CONTROL to obtain desired FPM indicated on SPEED INDICATOR.
c. Check DEV. TEMP thermometer on solution control panel and thermometer in top of dryer for required operating temperatures.
d. If dryer and developer have reached operating temperatures, processing can begin.

CAUTION

1. Never feed sheet films less than five inches long.
2. Delay at least five seconds between feedings to prevent overlapping of following sheets of film.

e. Figure 17 shows proper arrangement of various size films for feeding procedure. If possible, feed all narrower films side by side (do not overlap) to avoid over-replenishment of solutions.

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

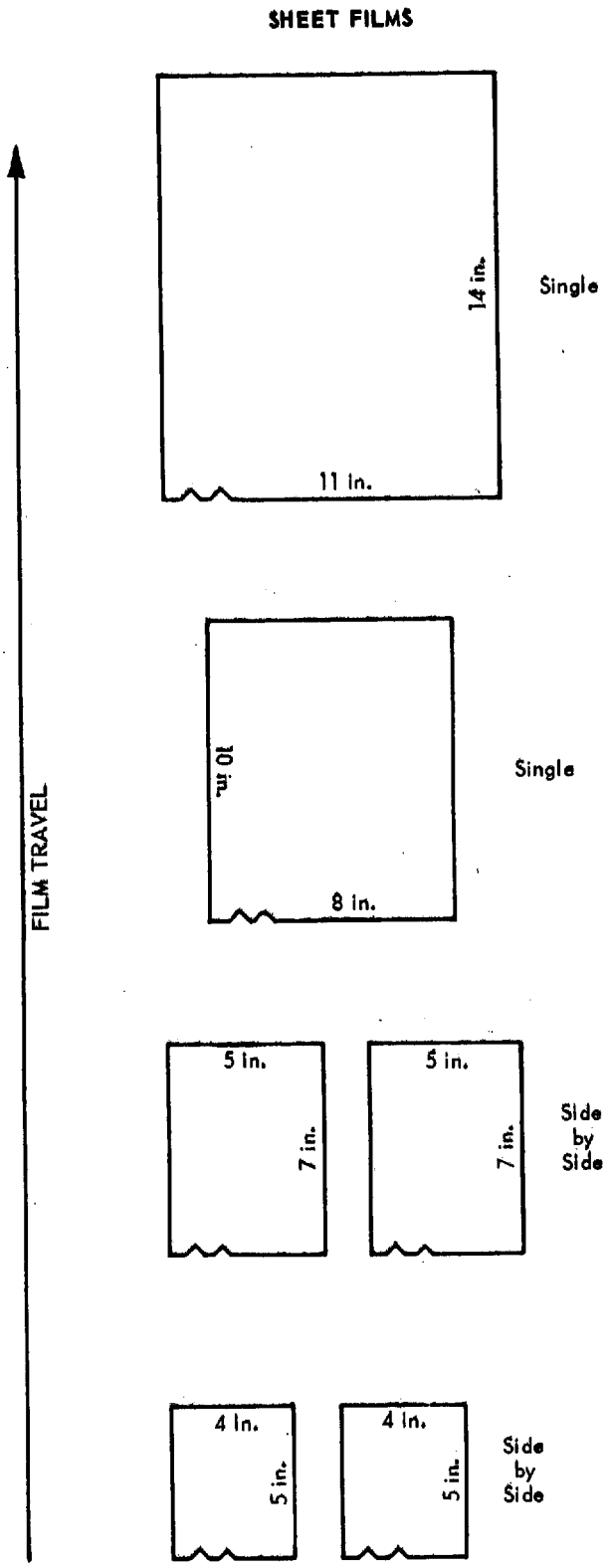

Figure 17. Proper Arrangement for Feeding Various Sizes of Film

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

2.2.4 Processing Roll Film

This procedure is similar to that for processing sheet film. Follow steps a. through d. under Section 2.2.3. When film exits from the dryer, thread it onto the Portable Take-Up for the threading diagram mounted onto the mechanism plate of the unit.

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

SECTION 3

TROUBLE SHOOTING

3.1 GENERAL SERVICE NOTES

As a general rule, any difficulty in the processing system can cause failure of film to transport not only at that location but at any point beyond it. This situation is particularly true if the difficulty is chemical. For example, too high a developer temperature can cause failure of film to transport in the fixer rack, and improperly compounded or replenished fixer can cause transport failure in the dryer.

If several film sheets are involved in a transport failure covering a fairly large area of the processor, it can normally be assumed that the failure began at the point nearest the exit end. Thus, if product fails to transport in the dryer and the wash rack, the trouble most likely started at the point farthest along in the dryer, and the sheets following piled up in a chain reaction.

Note that some of the reasons for trouble may not be apparent because they may not cause transport difficulty until after several hundreds or thousands of film sheets have been fed. Thus, an improperly compounded or replenished solution may process up to 3,000 sheets with no apparent trouble, only to cause failure to transport thereafter.

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

3.2 PROCESSOR TROUBLE CHART

Trouble 1. Cocking or Twisting of Cut Sheet Film in Processing Section

Possible Cause	Probable Remedy
1. Buildup on developer rack rollers	Clean with [redacted] Developer System Cleaner STAT
2. Algae or bacterial growth in wash rack (slimy condition on rollers accompanied by failure of films to transport at proper speed)	a. Wash with warm water and a plastic material, such as Scotch Brite b. Clean rack with [redacted] Developer System Cleaner. This will not necessarily remove the dark-colored stain from the rollers, but this is not harmful STAT
3. Crossover assembly twisted or not seated properly	Be sure all assemblies are square and seated properly

NOTE

Any of the causes of cocking or twisting in Trouble 1 may be a reason for failure of product to transport in any section of the processor.

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Trouble 2. Failure of Cut Sheet Film to Transport in Processing Section

Possible Cause	Probable Remedy
1. Rack chain loose (indicated by hesitating rack rollers)	Adjust chain, tighten studs. Replace chain if adjustment is insufficient
2. Chain drive sprocket worn - chain clinging to sprocket teeth	If sprocket has irregularly shaped teeth or deep pits at sides of teeth or is badly warped, replace. Upper sprocket of racks most commonly affected
3. Crossover or turnaround roller out of place	Gear teeth must mesh with teeth of large gear
4. Vertical-path roller sprocket not in mesh with chain	Tighten or replace loose chain or replace worn sprocket
5. Master roller bearing worn	Replace master roller bearing. Wear most common on drive side
6. Leader tab came loose	Tab must be carefully attached to the leading edge of the film with Mylar waterproof pressure sensitive tape
7. Binding in rack (indicated by rack jumping up and down in tank). Unit hard to turn by hand	a. All rollers must have sufficient end play to turn freely. b. If rack drive shaft or master roller drive shaft of turnaround is tight, replace bearing affected c. Be sure unit is seated properly d. Check squareness of unit e. Inspect the rack chain

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Trouble 2. Failure of Cut Sheet Film to Transport in Processing Section (Cont'd.)

Possible Cause	Probable Remedy
8. Excessive wear in rack drive shaft bearings	Replace bearings
9. Double thickness of product fed	Care must be taken in feeding cut sheet product. Double thicknesses may be drawn into processor if lead sheet has not passed entrance crossover
10. Crossover or rack rollers encrusted with heavy layer of chemical deposits	a. Good housekeeping practices must be observed. (See daily and weekly cleaning suggestions in Section 4) b. Remove deposits with a plastic abrasive material, such as Scotch Brite c. Developer rack may be cleaned with [redacted] Developer System Cleaner STAT Precede and follow use of cleaner with thorough washing
11. Rack or crossover rollers coated with yellowish-white chemical deposits (sulfurization)	a. Rack may be cleaned with a plastic abrasive material, such as Scotch Brite b. If fixer solution is murky in processor tank, it should be changed. Cloudy condition of fixer replenisher indicates improper mixing and should also be changed c. Fix-wash crossover may be cleaned with [redacted] Developer System Cleaner STAT Precede and follow use of cleaner with thorough washing

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Trouble 2. Failure of Cut Sheet Film to Transport in Processing Section (Cont'd.)

Possible Cause	Probable Remedy
12. Foam in developer tanks	a. Check for product or other obstructions covering intake to pump b. Check for solution leak on intake side of pump. Pump must be turned off to detect solution dripping on intake side. Before start-up, check solution level in tanks
13. Poor washing	Insufficient water pressure
14. Low solution level	a. Leak at any of the plumbing joints - check solution level in tanks b. Check to see that drain valve is completely closed c. Solution not being properly replenished
15. Rack main-drive gear (worm) worn (indicated by a jumping or hesitating rack)	Replace gear. Check rack for bind. Be sure rack is seated properly so that worm gear is fully engaged with worm on drive shaft
16. Crossover drive gear not in mesh with rack gear	Align gears properly. If gear worn, damaged, or badly warped, replace
17. Damaged product	Damaged product should not be fed, particularly if leading edge is torn or folded

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Trouble 2. Failure of Cut Sheet Film to Transport in Processing Section (Cont'd.)

Possible Cause	Probable Remedy
18. Warped roller on crossover, rack, or turnaround	Unusually warped roller can cause films to be ejected. This is especially critical if warped roller immediately precedes or follows crossovers or turnarounds
19. Improperly mixed solutions	Mix solutions according to directions on package
20. Improperly replenished solutions	See Trouble 10
21. Solution temperature too high	
a. Developer controller set too high	a. Reset thermostat to maintain developer solution as recommended
b. Developer and/or wash thermometer faulty	b. Check developer solution and wash water with long-stemmed thermometer of known accuracy. Place thermometer between undriven side of rack and tank
c. Freshly mixed solutions not given time to cool	c. Developer and fixer temperature must not exceed recommended processing temperature
d. Incoming water supply not turned on or insufficient flow	d. Serious contamination of the dryer rollers can result if the water supply is left off. Be sure water supply to processor is adequate and all valves are turned on

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Trouble 2. Failure of Cut Sheet Film to Transport in Processing Section (Cont'd.)

Possible Cause	Probable Remedy
22. Developer recirculation pump not operating properly	
a. Pump motor not operating	a. Make sure pump switch on control panel is on
b. Solutions not up to level (see Trouble 2, Cause 14 in this chart)	b. Solutions must be above the level of the pump flooding outlet in the processing tank for the pump to operate
23. Solutions diluted with water or improperly mixed	If image densities are lower than normal, over-dilution of the developer is indicated. Check for possible leak in heat exchanger. Check developer or fixer as indicated
24. Crossover dirty	Rinse and wipe daily with damp vinyl sponge or cloth
25. Wash water dirty	Racks must be clean. If this condition occurs, consider the use of water filters on both hot and cold incoming water lines
26. Binding in crossover. Unit hard to turn by hand	All rollers must have sufficient end play to turn freely. Studs must be free of encrustation

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Trouble 3. Failure of Film to Transport in Dryer

Possible Cause	Probable Remedy
1. Tacky emulsion caused by many of the conditions noted in previous troubles	Most notable reasons for tacky emulsions entering dryer: a. Any of the solution or wash water temperatures too high b. Any of the solutions improperly mixed or compounded, or over-diluted with water
2. Rollers binding in dryer entrance or exit crossover assemblies	Free rollers so that they spin easily
3. Broken gear teeth on rollers of entrance or exit crossover	Replace
4. Transport rollers dirty	Wipe with damp rag. Because of ball bearings, do not immerse in water. If smooth use Scotch Brite No. 477
5. Badly warped transport rollers	If warping is apparent, replace
6. Transport rollers not seated in holders	Be sure bearings are seated properly in holders
7. Dryer transport rollers hesitating	a. Check seating of transport rollers b. Must have sufficient end play to turn freely c. Ball bearings must turn freely
8. Insufficient drive for transport rollers (may be indicated by hesitation of rollers)	If dryer drive belt appears loose, badly worn or slippery, replace belt

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Trouble 3. Failure of Film to Transport in Dryer (Cont'd.)

Possible Cause	Probable Remedy
9. Dryer temperature incorrect	Set thermostat and other dryer controls as recommended. Check with thermometer of known accuracy
10. Dryer not able to reach proper temperature (may be indicated by damp films)	a. Check dryer heaters b. Check dryer thermostat
11. Dryer air tubes improperly positioned or located	Be sure to snap tubes into locking position when they are installed
12. Bent guide pin	All pins on air tubes must be aligned
13. Failure of overlapped film sheets from processing section to transport	Check feeding procedure
14. Clogged air intake filter in front bottom (may be accompanied by damp films)	Check filter periodically. Clean or replace
15. Worn bearings in turnaround	Replace bearings
16. Warped rollers in turnaround	Replace as needed
17. Inner row of turnaround rollers binding	Inner rollers must spin freely
18. Transport rollers improperly located	Remove and replace rollers in proper location. All up-path rollers have grooves in their hubs

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Trouble 4. Lower than Normal Solution Recirculation Rate

Possible Cause	Probable Remedy
1. Foreign particle in solution pump	Remove obstruction. Pay particular attention to pump outlet
2. Heat exchanger clogged	Clean. If some recirculation is present, [redacted] Developer System Cleaner may be used STAT
3. Tubing in recirculation system clogged	a. If chemical deposits are present, clean developer rack, tank, and recirculation system with [redacted] Developer System Cleaner STAT b. If foreign particle is lodged in tubing, it must be removed. Pay particular attention to the tubing connection at the pump outlet in the side of the tank

Trouble 5. Power Loss

Possible Cause	Probable Remedy
1. Circuit breaker tripped	Reset. If trouble persists notify maintenance chief

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Trouble 6. Scratches Lengthwise on Film

Possible Cause	Probable Remedy
1. Dryer air tubes out of position	Be sure to snap tubes into locking position when they are installed
2. Dryer air-tube guide pins out of line or loose	Remove dryer air tubes and check guide pins visually for straightness. Straighten any which may be bent. Tighten loose pins with a drop of epoxy cement. Wide lines generally indicate scratching nearest to the entrance of the dryer; thin lines indicate scratching toward exit of dryer
3. Any roller in processing section held stationary (indicated by many fine dark random lines)	Any hesitation in the drive system must be eliminated. Pay particular attention to pacer rollers, entrance crossover, and first two rollers of developer rack
4. Improper spacing between master roller and cluster roller on turnarounds and crossovers	Spacing should be .028 inch between master roller and cluster roller

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Trouble 7. Drying Streaks on Prints

Possible Cause	Probable Remedy
1. Dirty air-tube slits	Clean interior of air tubes by immersing them in warm water and agitate vigorously. DO NOT SOAK tubes
2. Slit width not maintained properly	Using the screws on the side of the air tubes, readjust air slits to .022 inch at the area of the screws
3. Dryer temperature too high	Adjust temperature. Check with known thermometer

Trouble 8. Failure of Replenisher System to Operate

Possible Cause	Probable Remedy
1. REPLENISHMENT switch not turned on	Turn switch ON. Pilot light will glow when switch is ON
2. Valve controlling air to pressure switches closed	Set pressure regulator to obtain about 1 1/2 psi reading on gage located above the two FIX three-way valves on the solution control panel
3. Pressure switch stuck open	Replace switch. Notify maintenance chief

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Trouble 9. Thumping Sound

Possible Cause	Probable Remedy
1. Drive sprocket or chain worn or out of line	Replace sprocket and/or chain
2. Drive motor chain not at proper tension	Adjust tension

Trouble 10. Decrease in Film Density

Possible Cause	Probable Remedy
1. Developer reaching exhaustion (gross under-replenishment)	Check replenishment rate and/or mix fresh solution
2. Old or exhausted replenisher	Mix new solution
3. Developer temperature low	Adjust developer controller as recommended
4. Developer solution diluted with water or improperly mixed	Be sure to follow instructions on the developer package when mixing. Check for possible leak in heat exchanger. Change developer
5. Too great a transport speed resulting in underdevelopment	Check SPEED INDICATOR on control panel. Increase speed if needed

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Trouble 11. Increase in Film Density

Possible Cause	Probable Remedy
1. Developer temperature too high	Adjust controller as recommended
2. Slight over-replenishment	Check replenishment rate
3. Developer replenisher improperly mixed	Mix replenisher according to directions on the package
4. Contamination of developer with fixer	Drain and rinse tanks and mix fresh solutions. To avoid contamination, remove the fixer rack very slowly
5. Too slow transport of film resulting in overdevelopment	Check SPEED INDICATOR on control panel. Increase speed if needed

Trouble 12. Fogged Film

Possible Cause	Probable Remedy
1. Developer contaminated by fixer	Drain and rinse tanks and mix fresh developer. To prevent contamination, always use splash guard when removing fixer racks

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

SECTION 4

MAINTENANCE

4.1 GENERAL

The procedures and checks described in this section are those that can be performed easily by operating personnel. Involved equipment repairs should be handled by competent maintenance technicians.

Experience with roller transport processors indicates that proper operation of the RT-12R Processor with minimum service problems depends on well-established work habits and good housekeeping. Personnel should be trained to follow the recommended daily check before start-up, the nightly clean-up, and the weekly inspection outlined below.

4.2 DAILY CHECK

4.2.1 Start-Up

Proceed with the following steps:

a. Start water flow by turning the WASH valves on. Check circulation rate in flow meters

b. Remove both bottom panels on solution control panel and open petcock on drain line from air filter. When moisture ceases to run out of petcock, close valve.

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

c. Turn ON MAIN switch and other electrical switches (see Section 2.2) on the feed stand.
d. Remove the processing section covers and wipe down the entrance rollers and crossovers.
e. Turn ON the air for the replenisher system.
f. Feed a test sheet of film and check the replenishment rate at the flow meters
g. Check the operation of the racks and crossovers.
h. Remove the top panel on the dryer cabinet and check operation of the dryer transport roller section.
i. Check the developer(s) temperature.
j. Check the dryer temperature.
k. Replace the covers and panel.

4.2.2 Shut-Down

Proceed as follows:

a. Before turning OFF power, be sure that the processor has been cleared of film.
b. Reduce machine speed to 0 and turn OFF the MAIN and other switches on the electrical control panel.
c. Remove all processing section crossover assemblies and rinse them with warm water. Use a soft brush to remove any deposits that may have formed. Don't use abrasives.

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

CAUTION

The exit crossover and the flasher crossover roller assemblies should never be immersed in water, hot or cold. Instead wipe all rollers with a sponge dampened with clean cold water.

d. Without removing the racks, wipe off all rack rollers above the solution level.

e. Wipe off the stainless-steel pacer rollers at the entrance to the processing section.

f. Turn the WASH control valves off.

g. Prop open or remove the processing section covers so that the chemical-laden fumes from the tanks can escape. This precaution will reduce staining of processor parts.

NOTE

If the processor is operated on a 24-hour-per-day basis, steps a. through c. should be carried out but once every 24-hour period.

4.3 CUT SHEET FILM SALVAGE

When trouble occurs, do not turn OFF the MAIN switch. Proceed as follows:

a. Pull a crossover ahead of the malfunction.

b. Remove the cut sheets of film at this point to avoid further pile up. Collect these sheets in a tray of water to avoid their sticking together.

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

c. Clear the processor.

d. Re-introduce the collected cut sheets into the processor at the point of interruption.

4.4 WEEKLY PROCEDURE

a. Remove the crossover assemblies and wipe the rollers with a damp vinyl sponge or cloth.

b. Check tension of rack chains. Any sign of roller hesitation indicates a loose chain.

CAUTION

To prevent contamination of developer with fixer solution, place a splash guard on the partition between the developer and fixer tanks whenever removing the fixer rack.

c. Remove the roller racks, rinse them with running water, and wipe them with vinyl sponge or cloth. Rinse water should not exceed 120F. Be sure to clean all removable chemical deposits on the sides of the racks around the gears, chain tightener, etc.

d. Rotate the rack by hand to be sure that all of the rollers turn freely. Adjust the chain tension if necessary.

e. If there is doubt that the rack is square, lay it on a flat surface and check.

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

f. While the racks are out, examine the solution tanks for the presence of any foreign matter and for solution clarity.

g. Reinstall racks and crossovers. Check all crossover and rack gears to be sure they are seated properly.

h. Check dryer entrance and exit crossovers to be certain they are seated properly.

i. Inspect the dryer air tubes. If the slits are clogged, clean by agitating the tubes vigorously in a tray of warm water and wipe dry. Do not soak since swelling of the slits could result.

j. Check the dryer intake filter. Replace if dirty.

k. Check the dryer plenum filters by operating blower at top speed (setting 4 on BLOWER SELECTOR for 1800 RPM) and observing filter gage on take-off end. If gage reads "CHANGE FILTER" on its orange flag, replace filters with new ones.

4.5 FREQUENCY OF SOLUTION CHANGE

Although most solutions will last indefinitely with proper replenishment, it is desirable to drain, clean, and check the processor on a periodic basis.

STAT

4.6 HOW TO USE [redacted] DEVELOPER SYSTEM CLEANER

WARNING

Contains Sulfamic Acid - Causes Burns

Do not get in eyes, on skin, on clothing. In case of contact, flush skin or eyes with plenty of water for at least 15 minutes. For eyes, get medical attention.

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

NOTE

1. Do not use in the fixer system of the processor; sulfurization may result.
2. Do not use in stronger solution than recommended; cleaning action may be reduced.

Directions for use when developer solution is being changed:

a. Drain the developer solution from the processor and remove the developer racks.

b. To prevent contamination of the fixer with cleaner solution, place the splash guard on the partition between the developer and fixer tanks.

c. Remove the developer-system filter cartridge and replace the filter cover.

d. Fill the developer tanks with approximately 6½ gallons each of pre-mixed [redacted] Developer System Cleaner.

STAT

e. Turn on the developer recirculating pump and allow the cleaner to recirculate for approximately fifteen minutes.

f. While the cleaner is recirculating, place the developer racks in a sink and flush them with warm water. Use the remaining Developer System Cleaner to clean the two developer racks. If necessary, mix more cleaner. While rotating the rack drive gear, apply cleaner to all the rollers and rack side plates. The cleaner can be applied with a brush, or spray. A plastic spray bottle is recommended.

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

g. Flush the racks with warm water; then wipe all rollers with a damp sponge to remove all cleaner solution. Repeat paragraphs f and g, if necessary.

h. Clean crossovers Nos. 2, 3 and 4 (also 11 if reversal process has been used) in the same manner. For stubborn deposits, the rollers may be scrubbed with a soft brush wet with Developer System Cleaner.

WARNING

Wear goggles or other eye protection when using brush; note WARNING at beginning of this section.

i. After the racks, crossovers, and tanks are clean, drain the cleaning solution from the tanks; then flush with warm water.

j. Replace the racks and fill the tanks with warm water. Turn on the recirculation pump and the main drive. Allow to run for about five minutes. Drain the tanks and repeat this procedure until the water shows no discoloration.

k. Install a new developer filter cartridge and mix new developer solution.

NOTE

Racks must be thoroughly cleaned of all chemical deposits; otherwise, cleaner may be absorbed by the deposits with resulting contamination of the new developer.

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

4.7 CHANGING FILTER CARTRIDGES

The five housings containing these filters are located behind the two bottom panels on the solution control panel. Each panel is easily removed by lifting up on its bottom edge until the two holes clear their retaining screws and pulling the panel out. The cutout will clear the drain valve knobs.

The filter cartridges recommended are Fulflo*honeycomb tubes, No. E17X10-S, made of wound viscose fiber over a stainless steel core. Each filter housing holds one cartridge.

To change a filter cartridge, proceed as follows:

a. Close inlet and outlet valves to filter.

NOTE

If it is necessary to continue solution flow while changing filter, open the valve in the bypass line around the filter before closing the valves on the intake and outlet sides.

b. Loosen air vent screw on top of container and drain screw on bottom and allow shell to drain.

c. Loosen cover nut on top of cover to remove shell.

d. Discard used filter and wipe inside of shell clean.

---

* When using the reversal process the E17X10-S Fulflo filter must be replaced by a Cuno Filter in the bleach filter housing. The Fulflo disintegrates if used; the Cuno does not.

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

e. After removing tissue wrapper, insert new filter into shell. Press tube down firmly.

f. Place new gasket in lip of shell and press up against filter head making sure that gasket is firmly seated all around.

g. Engage cover nut with threads of center post and screw down firmly to compress filter tube and establish seal at top and bottom.

h. Close drain screw and open outlet and inlet valves. When liquid runs out of air vent screw, trapped air has been released and the screw should be tightly closed.

i. After five minutes operation, tighten air vent screw and cover nut if necessary.

4.8 LUBRICATION

Table 1 on the next page is a lubrication chart covering the requirements for the RT-12R processor.

CAUTION

When lubricating parts, use extreme care to prevent dripping oil on the crossovers and racks or in the solution tanks.

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

TABLE 1

LUBRICATION CHART

Component	Type of Lubrication	Frequency	Technique
Worm Drive Gears: a. Detector Roller Drive b. Rack Drive c. Dryer Drive (located behind rear dryer panel)	NLGI - No. 2 Lithium Ball and Roller Bearing Grease, such as Shell Oil Co. Alvania No. 2 or equivalent	Every 6 months	Apply a small amount on the surface of the gear teeth
Drive Chains: a. Pacer Rollers b. Main Drive c. Dryer Drive (located behind rear dryer panel)	Same grease as used for Worm Drive Gears	Check monthly to establish periodic need	Apply to surface of chain. Be careful not to catch fingers in moving chains or sprockets
Main Drive Motor Gear Box	SAE No. 90 gear oil	Check every 6 months	Fill to "Oil Level" hole indicated on gear box. Add oil through upper hole marked "Oil Fill"
Air Dryer Blower Motor	Light oil, such as SAE No. 10	Every 6 months	Several drops of oil in holes in top and bottom of motor

The following products are equivalents of Alvania No. 2:

Atlantic Refining Co.	- Atlantic 54
Cities Service Oil Co.	- Trojan H-2
Sun Oil Co.	- Prestige 42
Sinclair Oil Co.	- Litholene EP-2
Socony Mobil Co.	- Mobilux No. 2
D. A. Stuart Oil Co.	- Dasco 2-L
Texas Oil Co.	- RCX - HD Spec.

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

APPENDIX A

SPARE PARTS LIST

A.1 FLYAWAY SPARE PARTS LIST

Listed below are the parts included in the Flyaway Spare Parts Kit supplied with the RT-12R processor.

Part No.	Part Description	Qty. Per Kit
1-120-D-002	Rack Turnaround Complete	1
1-120-D-032	Rack Complete	1
1-120-D-211	Crossover Complete	1

A.2 DEPOT SPARE PARTS LIST

Parts included in this list are recommended to maintain one machine in normal operation for one year. These parts are supplied only at customer request.

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Used On Assembly Drawing	Part No.	A.P.S. Part No.	Part Description	Recommended Quantity
1-120-D-002 1-120-D-211 1-120-D-228	120-B-013		Roll Assembly - 1" Diameter	25
1-120-D-002 1-120-D-211 1-120-D-228	120-A-016	457459-A	Bearing	64
1-120-D-002 1-120-D-211 1-120-D-228	120-B-022	457463-A	Gear - 3" Diameter Roll	20
1-120-D-002	120-C-026		Subassembly - 3" Diameter Roll	3
1-120-E-033 1-120-E-200	120-A-035		Gear	10
1-120-E-033	120-A-036		Gear	2
1-120-E-033	120-A-037	452252	Bearing	24
1-120-E-033	120-A-038	452354	Bearing	14
1-120-E-033	120-A-040	453721	Bearing	12
1-120-E-033	120-A-041		Gear	2
1-120-E-033	120-B-047	453742	Roll Assembly - .980" Diameter	1
1-120-E-033	120-B-050	452929	Special Screw	7
1-120-E-033	120-B-051	453739	Roll Assembly - .730" Diameter	1
1-120-E-033	120-B-052	453452	Roll Assembly - .730" Diameter	2

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Used On Assembly Drawing	Part No.	A.P.S. Part No.	Part Description	Recommended Quantity
1-120-E-033	120-B-054	453551	Roll Assembly - .980" Diameter	3
1-120-E-033	120-B-058	453738	Roll Assembly - .730" Diameter	1
1-120-E-033	120-A-059		Gear	1
1-120-E-060	120-A-063	454418	Bearing	17
1-120-E-060	120-A-068		Bearing	2
1-120-E-060	120-A-070		Gear	1
1-120-E-060	120-A-073	452215	Bearing	2
1-120-E-060	120-B-089		Subassembly - 1" Diameter Roll	1
1-120-E-060	120-B-090		Subassembly - Grooved Roll	1
1-120-E-060	120-B-092		Gear	2
1-120-E-060	120-B-095		Gear	1
1-120-D-211	120-B-099	452016	Special Nut	30
1-120-D-228				
1-120-E-536				
1-120-E-060	120-B-100		Gear	1
1-120-E-060	120-C-109		Master Roll	1
1-120-E-060	120-C-110		Roll	2
1-120-D-032	120-C-114	452023	Drive Gear	10
1-120-E-060				
1-120-D-211				
1-120-D-228				
1-120-E-536				

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Used On Assembly Drawing	Part No.	A.P.S. Part No.	Part Description	Recommended Quantity
1-120-E-138	120-A-141	452270	Bearing	16
1-120-E-138	120-A-146	452284	Bearing	4
1-120-E-138	120-A-148	452289	Bearing	4
1-120-E-138	120-A-151		Bearing	2
1-120-E-138	120-A-155	453607	Gear	1
1-120-E-138	120-A-157	453609	Gear	1
1-120-E-138	120-A-165	453620	1/4" P. Chain and Conn. Link	1
1-120-E-138	120-A-166		1/4" P. Chain and Conn. Link	1
1-120-E-138	120-A-168		Bearing	2
1-120-E-138	120-B-173	453627	Drive Pulley - Small	1
1-120-E-060	120-C-183		Drive Gear	1
1-120-E-060	120-C-184	454428	Master Gear	1
1-120-E-138	120-B-187		Drive Pulley	1
1-120-D-032	120-C-188		Worm Gear	18
1-120-E-138				
1-120-E-200	120-A-706	453464	Pulley Assembly	6
1-120-E-200	120-B-197	455616	Roll Assembly - 1" Diameter	6
1-120-D-211	120-B-217		Roll Assembly - 3" Diameter	4
1-120-D-228				
1-120-E-536				

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Used On Assembly Drawing	Part No.	A.P.S. Part No.	Part Description	Recommended Quantity
1-120-E-276	120-A-230		Bearing	3
1-129-E-276	120-B-246	452148-C	Worm	1
1-120-E-276	120-B-247	453528-A	Worm Gear	1
1-120-E-276	120-A-264		Bearing	1
1-120-E-276	120-A-265		Bearing	2
1-120-E-276	120-A-266		Bearing	2
1-120-E-276	120-A-267		Bearing	3
1-120-E-276	120-A-270		Spring	2
1-120-E-288	120-A-296	452387	Ball Bearing	30
1-120-E-031	2-949-B-009		Ball Bearing	8
1-120-E-276	120-A-708		Air Pressure Switch	2
1-120-E-288	120-A-295		Drive Belt	4
1-120-E-288	120-B-307		Subassembly Flanged Down-Path Roll	2
1-120-E-288	120-B-308		Subassembly Plain Down-Path Roll	10
1-120-E-288	120-B-312		Subassembly Flanged Up-Path Roll	2
1-120-E-288	120-B-313		Subassembly Plain Up-Path Roll	10
1-120-D-032	120-A-336	452112-C	Stud - Idler	16
1-120-D-032	120-A-339	452113-A	Idler	32
1-120-D-032	120-B-340	452548-A	Stud - Rack Rolls	150
1-120-D-032	120-B-345		Screen - Rack	16
1-120-D-032	120-B-380		Bearing	32
1-120-D-032	120-B-381		Subassembly - 1" D. Rack Roll (Plain)	56

AL-45-700085-1
RT-12R

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Used On Assembly Drawing	Part No.	A.P.S. Part No.	Part Description	Recommended Quantity
1-120-D-032	120-A-396	457196	Ladder Chain - Rack	150 Ft.
1-120-D-210	120-B-413		Subassembly Foam Covered Roll	1
1-120-D-210	120-A-426	453460	Gear	4
1-120-D-210	120-A-428		Bearing	4
1-120-D-210	120-A-429	452252	Bearing	8
1-120-D-210	120-A-431	452246	Bearing	2
1-120-D-210	120-A-437	452244	Gear	1
1-120-D-210	120-A-442	457484	Bearing	1
1-120-D-210	120-B-444		Subassembly - Deflector Roll	1
1-120-D-210	120-B-448		Master Roll	1
1-120-D-210	120-B-449		Subassembly - 1" Diameter Roll	1
1-120-D-210	120-A-454		Drive Belt	2
1-120-E-455	120-A-462		Bearing	2
1-120-E-455	120-A-469		Bearing	4
1-120-E-455	120-B-481		Roll	2
1-120-E-403	120-A-510		Lamp	2
1-120-E-537	120-A-539		Fuse - 15 Amps	1
1-120-E-537	120-A-541		Fuse - 6 Amps	1
1-120-E-536	120-A-554		Bearing	6
1-120-E-536	120-A-555		Gear	2
1-120-E-536	120-A-556		Gear	1

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0

Used On Assembly Drawing	Part No.	A.P.S. Part No.	Part Description	Recommended Quantity
1-120-E-536	120-A-557		Gear	1
1-120-E-536	120-A-560		Insert for Gear 120-A-561	1
1-120-E-536	120-A-561		Gear	1
1-120-E-564	120-A-568		Lamp	28
1-120-E-625	120-A-643		Heater	1
1-120-E-625	120-A-644		Filter - Make-Up Air	1
1-120-E-455	120-A-695		Bearing	1
1-120-E-633	120-A-707		Pump Seal	2
1-120-D-032	120-B-709		Subassembly - 1" D. Rack Roll (Poly-Covered)	56
1-120-E-009	120-A-1244		Neon Lamp	8
1-120-E-537	120-A-1301		Fuse - 20 Amps	3
1-120-E-537	120-A-1303		Fuse - 10 Amps	5
1-120-E-403	120-A-1332		Filter - Blower	1
1-120-E-537	120-A-1453		Resistor	1
				2

AL-45-700085-1
RT-12R

Approved For Release 2005/06/06 : CIA-RDP78B04770A002400050039-0